

Listing of Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) ~~A method for automatically detecting and diagnosing impairment in a communication service;~~ The method of claim 30 further comprising:

- a) detecting events that occur in a plurality of in domain communication channels where each channel is used by a communication service; and
- b) determining the probability of each of a plurality of possible causes as being a cause of interference in a victim channel, by propagating observations of the interference backwards through a Bayesian Belief Network (BBN) which defines a probabilistic cause-effect relationship between each cause and each effect.

Claims 2-17 (canceled)

18. (currently amended) ~~A~~ The method of claim 30 further to determine the probability that a victim channel is interfered with by an offender channel comprising:

- monitoring events and causes on a channel;
- correlating events and causes; and
- postulating out-of-domain offenders based upon in-domain activity.

Claims 19-29 (canceled)

30. (previously presented) A method comprising:

- 1) determining the number of disturber signals on a channel;
- 2) generating an ideal disturber signal model of an ideal disturber signal for each of the disturber signals;

- 3) comparing the ideal disturber signal model with an actual signal on the channel to generate an estimation of a co-channel of the disturber signal; and
- 4) repeating steps 1)-3) as necessary until all the co-channels of the disturbers are identified.

31. (previously presented) The method of claim 30 further comprising:
detecting a service type existence.

32. (previously presented) The method of claim 31 wherein the service type existence is detected by identifying/characterizing at least one disturber signal on the channel.

33. (previously presented) The method of claim 31 wherein detecting the service type existence is focused on at least one particular frequency range in a case where it is known that a particular service type may cause a disturbance on the channel.

34. (previously presented) The method of claim 30 wherein determining the number of disturber signals on the channel includes:
determining a disturber/noise power, wherein if the disturber power is above a critical threshold;
identifying a source of the disturber; and
identifying a frequency of the disturber.

35. (previously presented) The method of claim 30 further comprising:
prioritizing the sources of the disturbers from highest to lowest disturber power.

36. (currently amended) ~~A~~ The method of claim 30 further comprising:

- ~~1~~5) detecting a service type existence;
- 2) ~~the~~ determining of the number of disturber signals on the channel, including:

determining a disturber/noise power, wherein if the disturber power is above a critical threshold;

identifying a source of the disturber; and

identifying a frequency of the disturber;

~~3) generating an ideal disturber signal model of a spectral content of an ideal disturber signal for each at least one disturber signal;~~

~~4) comparing the ideal disturber signal model with an actual signal on the channel to generate an estimation of a co-channel of the disturber signal; and~~

~~5) the repeating of steps 1)-43) including repeating steps 5) and 1)-3) as necessary until all sources of the disturbers are identified.~~

37. (previously presented) The method of claim 36 wherein the service type existence is detected by identifying/characterizing at least one disturber signal on the channel.

38. The method of claim 36 wherein detecting the service type existence is focused on at least one particular frequency range in a case where it is known that a particular service type may cause a disturbance on the channel.

39. (previously presented) The method of claim 36 further comprising:
prioritizing the sources of the disturbers from highest to lowest disturber power.

Claims 40-76 (canceled)

77. (previously presented) A computer readable medium containing executable instructions which, when executed in a processing system, causes said system to perform a method, the method comprising:

1) determining the number of disturber signals on a channel;

2) generating an ideal disturber signal model of an ideal disturber signal for each of the disturber signals;

3) comparing the ideal disturber signal model with an actual signal on the channel to generate an estimation of a co-channel of the disturber signal; and

4) repeating steps 1)-3) as necessary until all the co-channels of the disturbers are identified.

78. (previously presented) The computer readable medium of claim 77 further comprising:
detecting a service type existence.

79. (previously presented) the computer readable medium of claim 78 wherein the service type existence is detected by identifying/characterizing at least one disturber signal on the channel.

80. (previously presented) The computer readable medium of claim 78 wherein detecting the service type existence is focused on at least one particular frequency range in a case where it is known that a particular service type may cause a disturbance on the channel.

81. (previously presented) The computer readable medium of claim 77 wherein determining the number of disturber signals on the channel includes:

determining a disturber/noise power, wherein if the disturber power is above a critical threshold;

identifying a source of the disturber; and

identifying a frequency of the disturber.

82. (previously presented) The computer readable medium of claim 77 further comprising:
prioritizing the sources of the disturbers from highest to lowest disturber power.

Claims 83-95 (canceled)

96. (previously presented) An article of manufacture comprising a program storage medium readable by a computer and tangibly embodying at least one program of instructions executable by said computer to perform a method, the method comprising:

- 1) determining the number of disturber signals on a channel;
- 2) generating an ideal disturber signal model of an ideal disturber signal for each of the disturber signals;
- 3) comparing the ideal disturber signal model with an actual signal on the channel to generate an estimation of a co-channel of the disturber signal; and
- 4) repeating steps 1)-3) as necessary until all the co-channels of the disturbers are identified.

97. (previously presented) The article of manufacture of claim 96 further comprising:
detecting a service type existence.

98. (previously presented) The article of manufacture of claim 97 wherein the service type existence is detected by identifying/characterizing at least one disturber signal on the channel.

99. (previously presented) The article of manufacture of claim 97 wherein detecting the service type existence is focused on at least one particular frequency range in a case where it is known that a particular service type may cause a disturbance on the channel.

100. (previously presented) The article of manufacture of claim 96 wherein determining the number of disturber signals on the channel includes:

- determining a disturber/noise power, wherein if the disturber power is above a critical threshold;
- identifying a source of the disturber; and
- identifying a frequency of the disturber.

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101. (previously presented) The article of manufacture of claim 96 further comprising:
prioritizing the sources of the disturbers from highest to lowest disturber power.

Claims 102-114 (canceled)